

CLAIMS

1. A ray cut filter comprising a transparent plate and a multilayer film formed on the transparent plate, wherein the multilayer film is
5 composed of first thin films made of a high refractive index material and second thin films made of a low refractive index material, the first thin films and the second thin films being alternately layered,
the multilayer film is provided with a sharpness prevention means for providing an inflection point at a wavelength within a change
10 wavelength band in which transmittance changes sharply to prevent a sharp change in transmittance in a predetermined wavelength band.
2. The ray cut filter according to claim 1, wherein
the multilayer film is composed of a plurality of layers ordinally
15 numbered from the transparent plate side,
each of the layers is composed of the layered first and second thin films, optical film thicknesses of the first thin film and the second thin film differ from layer to layer so that the layers have a thickness from that of each other, and
20 in the sharpness prevention means, an optical film thickness of each thin film in each layer is designed so that the layered first and second thin films have substantially the same optical film thickness in at least one of the layers, while the layered first and second thin films have optical film thicknesses gradually increased from the transparent plate
25 side in the other layers.
3. The ray cut filter according to claim 2, wherein
the layers include a first layer, a second layer and a third layer, thicknesses of the first, second and third layers being increased

sequentially,

the layers in which the first and second thin films have substantially the same optical film thickness are the second and third layers, and the other layer is the first layer.

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4. The ray cut filter according to claim 2, wherein

the layers include a first layer, a second layer and a third layer, thicknesses of the first, second and third layers being increased sequentially,

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the layers in which the first and second thin films have substantially the same optical film thickness are the first and third layers, and the other layer is the second layer.

5. The ray cut filter according to claim 2, wherein

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the multilayer film corresponding to a wavelength band from a visible region to an infrared region is formed on one side of the transparent plate, while the multilayer film corresponding to a wavelength band from an ultraviolet region to a visible region is formed on the other side of the transparent plate.

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6. The ray cut filter according to any of claims 2 to 5, wherein

the optical film thicknesses of the first and second thin films are changed by a small amount in the layer in which the first and second thin films have substantially the same optical film thickness.

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7. The ray cut filter according to any of claims 2 to 6, wherein

in the sharpness prevention means, at least one adjustment layer is provided at at least one of locations between the layers and on both ends of the layered structure, and

the adjustment layer prevents a change amount in transmittance changing sharply between the layers.